

# CLL Poster Sessions

## **A Scholastic Appeals Process for Dental Hygiene Student Remediation and Retention**

*\*Jacqueline Freudenthal, RDH, MHE; Denise M. Bowen, RDH, MS  
Idaho State University*

Remediation must meet specific needs of learners. For many students, remediation experiences are critical to becoming competent clinicians. A scholastic appeals process to tailor individualized remediation programs for baccalaureate dental hygiene students not meeting academic standards for graduation was assessed retrospectively from 1999 to 2008.

The purpose was to evaluate retention and academic failure rates, nature of academic problems, type of remediation recommended and success of various recommendations. With approved IRB exemption, academic records of all students (n=55) not meeting academic standards and student petitions requesting an individualized remediation program were reviewed. Successful remediation was defined as passing all subsequent courses, graduation from the program and passing national and regional board examinations.

Overall retention was 92.7%, ranging from 86.7% to 96.6% for each class. Six students (10.9%) withdrew for medical or personal reasons without an appeal, 49 (89.1%) submitted petitions for individualized remediation programs. Reasons for students petitioning included: 4 (8.2%) for preclinical courses, 33 (67.3%) for clinical courses, 8 (16.3%) for a combination of clinical skills, family and/or personal reasons and 4 (8.2%) for academic dishonesty. Options approved for continuation with a formal, remediation program included: a summer clinical course with an individualized contract (n=14) or an independent study course during the academic year plus the required summer course (n=13), both without delaying graduation, repeating a course for a 1 semester delay in graduation (n=9) or auditing and repeating multiple courses for a one-year delay in graduation (n=4).

Nine students were dismissed from the program due to denial of a petition requesting remediation, or a second failure to meet academic standards after an approved program of study. The scholastic appeals process was successful for 91.8% (n=45) of students who petitioned. A student-specific remediation plan based on individual academic appeals is a viable option for assuring student success.

## **Teaching Basic Life Support to Health Care Providers in a Large Dental School**

*\*Beverly A. McClure, RDH, BS  
The Ohio State University, College of Dentistry*

Staff, students and faculty are considered Health Care Providers (HCP) and need to be certified in Basic Life Support (BLS) every 2 years according to the American Heart Association (AHA) guidelines. Training and retraining is a challenge in a large dental school. New staff and faculty are employed throughout the year and new classes of students need to be trained as they enter school and progress through their careers. The College has the responsibility of training all clinical employees and students in BLS skills for HCP along with teaching emergency protocol. While the AHA guidelines have changed for bystanders; the guidelines for HCP remain the same. Bystanders are instructed to give compressions only while HCP must be proficient in adult, child and infant compressions as well as breathing and choking lifesaving techniques.

A new program was developed so that college family is trained in a timely and hopefully enjoyable manner. Dental students rotate training every 2 years in June while Dental Hygiene students are trained in January and the dental faculty and staff rotate training in December following final exams. Each College division has at least 1 person who serves as a BLS instructor, so it is the responsibility of the division to train a new hire on an individual basis. A combination of a video timed hands-on experience and instructor focused group training is utilized. The College BLS coordinator manages the video with the hands-on practice concentrating on compressions and breathing.

The instructors teach the other skills in small groups. A written test must be passed with an 85% to earn certification. A 6-question Likert survey was given to the dental students (n=91) following the experience in June 2008. One hundred percent of students either strongly agreed or agreed that the BLS training increased knowledge of BLS standards, the BLS instructor facilitated their learning and respected their needs as learners. A student commented, "Overall, a great and organized experience; you get an A+." The same survey was given to faculty in December 2007 (n=59). One hundred percent of faculty either strongly agreed or agreed that the BLS training was relevant to their practice, met their educational needs and increased their knowledge of BLS standards. Faculty comments were more numerous and included the following: "Was good to have the video,"

“Very effective refresher” and “Sequence of video and then demonstration was good.”

### **Outcomes of a Standards of Professional Responsibility Report and Self Assessment**

*\*Denise Bowen, RDH, MS; Carole Christie, M COUNS; Carlene Paarmann, RDH, MEd; Jane C. Coe Smith, PhD, LPC  
Idaho State University*

Evaluation of ethics and professionalism is a challenge, and dental hygiene program accreditation requires student competency. Selfassessment of this domain requires reflection.

This retrospective review analyzed outcomes of 1 evaluation mechanism employed at Idaho State University: the Code of Ethics and Professional Responsibility Report and Self Assessment completed by students as a course requirement in each of the 4 semesters of the professional phase of the curriculum. Students receive a satisfactory/unsatisfactory rather than numeric grade for explaining in writing, and ranking ways in which they have met each of the 9 professional standards identified in the ADHA Code of Ethics during the semester. Students also reflect on subsequent actions or important learning outcomes.

This retrospective analysis of the past 5 years of these self assessment reports includes a mixed methods approach, quantitative and qualitative, to assess this new educational approach for evaluating students' reflection and self assessment of professional responsibilities. IRB review allowed for an approved exemption.

ANOVA analyses of data indicating significant differences between students self assessments in various semesters of the curriculum were followed by nonparametric Wilcoxon Signed Ranks Tests with a Bonferroni correction to the  $p$ -value (0.05). Quantitative results indicated students perceived growth over time ( $\alpha < 0.001$ ) from semester 1 to semester 4 in relation to themselves as individuals and professionals, clients, colleagues, the dental hygiene profession, the community and society and scientific investigation.

No difference ( $\alpha > 0.05$ ) was noted in their self assessment of family and friends or faculty and staff. Students' perceptions of their competence in meeting certain responsibilities varied over time, and qualitative analysis is in progress to identify themes impacting development of professional responsibility.

Regular self assessment of ethics and professional responsibility provides an opportunity for students to reflect and for program outcomes assessment of this domain.

### **Benefits of Membership: Perceptions of Michigan Registered Dental Hygienists**

*\*Marge Buehner, RDA, RDH, MHSA; Cathy Krupp, RDH, BS; Brandi Clisham, RDH, BS  
Michigan Dental Hygienists' Association*

Many organizations have a difficult time attracting and retaining members. Social Exchange Theory alludes that individuals pursue a membership if that membership satisfies their goals and if the benefits of membership are greater than the costs. Costs may be monetary, time or other personal reasons. Comparing the perceptions of non-members versus members is one way of identifying factors motivating membership.

The purpose of this investigation was to explore motivation factors of Michigan dental hygienists when choosing to join the Michigan Dental Hygienists' Association (MDHA). A 15-item survey was distributed to a convenience sample of dental hygienists attending the MDHA Annual Scientific Session in April of 2008 and at the September 2008 meeting of local components. Demographic information, such as date of graduation and highest degree held, was also obtained.

Members and non-members were given the same survey. Surveys were returned by 506 hygienists. Of those, 197 were members and 305 were non-members. Four surveys were returned with no membership designation.

The most frequently reported motivation factors for being a member was “Continuing Education” (71%) and “Networking” (66%). One of the least frequently reported motivation factors was “Employment Assistance” (15%). Seventy-five percent of non-members noted “Cost” (78%) as the most frequent reason that prohibited them from becoming a member of their professional association. Almost half (48%) of the non-member respondents stated they would consider joining the association.

Results of the study indicate that MDHA needs to focus on educating dental hygienists to becoming a member of their professional association. Using the data obtained from the investigation, strategies aimed at communicating benefits will be implemented as a component of a comprehensive membership campaign.

Funding for this project was through MDHA Research Council.

## Dental/Medical Collaboration in a Safety Net Clinic

*\*Doreen M. Eyer, RDH, ECP II; Diane E. Huntley, RDH, PhD  
Wichita State University*

**Purpose/Goals:** This program assessed the effectiveness of collaboration between a dental hygienist and physician assistant in achieving access to oral health care for children at GraceMed. The goal was ensuring that children seen in the Medical Clinic received needed dental services.

**Significance:** This program demonstrated the need for collaboration between medical and dental personnel, particularly in settings where patients have little experience with dental care. Prior to the program, no children were referred from the Medical Clinic for dental care, and no fluoride varnish was applied.

**Approach/Key Features:** For new patients with a medical appointment, the physician assistant notified the dental hygienist, who did a dental screening and applied fluoride varnish. The dental hygienist performed a Caries Risk Assessment and followed up on the implementation of the treatment plan and completion of treatment.

**Evaluation:** 135 children were referred from medical to dental. Demineralization only was found in 39 children. Fifty-four had caries and 30 had both caries and demineralization. Sixty-one completed their treatment plans, 66 had 4 month fluoride varnish applications and 6 month dental recalls were kept by 57. Due to the collaboration between hygienist and physician assistant, children who had medical appointments were able to access dental care.

## Comparison of Methods of Oral Hygiene Instruction and Manual versus Powered Brushing for Improving Gingival Health

*\*Patricia E. Inks, RDH, MS; Pouran Famili, DMD, MPH, PhD; Judith E. Gallagher, RDH, MEd; Linda S. Kelly, DMD; Elizabeth A. Short, RDH, BS; M. Abdus Sattar  
University of Pittsburgh, School of Dental Medicine*

This research evaluates improvements in gingival health among average patients of university dental school training clinics. The research compares subjects using conventional, commercially-available powered toothbrushes versus conventional manual devices versus other groups of the same average dental school clinic patients receiving standard verbal methods of homecare instructions versus the use of videotaped delivery of the same instructions.

Gingival health, using a probing depth chart, bleed-

ing index and plaque index completed before instructions, was compared to the same data collected after instructions and 6 weeks of subject self-practiced home care.

Subjects were randomly selected to receive manual or powered brushes and verbal or videotaped instructions. A total of 137 subjects were enrolled – 114 subjects (85%) completed the study. The study compares efficacy and safety among devices with the content, delivery and repetition of the oral hygiene instruction.

**Hypothesis:** Standard verbal hygiene instructions at conventional periodontal maintenance recall appointments, supplemented by the use of conventional commercially available powered toothbrush in subsequent home care, will be the most effective available tools for plaque control and to improve gingival health.

## Comparison of ADA National Survey Results One Dental Hygiene Program

*\*Rosemary D. Hays, RDH, MS; Eva M. Lupovici, RDH, MS; Lisa Stefanou, RDH, MPH; Cheryl M. Westphal, RDH, MS; Judy Kreismann, RDH, MA  
New York University, College of Dentistry*

The results of the last released ADA Survey of Allied Dental Education (Survey) on dental hygiene graduates was used to compare to a large dental hygiene program (Program) to assess the differences of ages, gender, citizenship, race/ethnicity, highest level of education completed, financial assistance, employment history and post graduation occupation.

The assessment results could be used as potential strategy for future recruitment of students to the Program. The major differences in Survey and Program results are as follows: 62 to 68% of all graduates were 29 years or younger. Of these, the Survey reported 36% were age 23 or younger, while 48% were ages 24 to 29. In the Survey, 36% of female graduates were age 23 or under, and 38% of males were 24 to 29 years old, as compared to the Program whose 50% of females were 24 to 29 years old, and 50% of males were age 40 or over. In the Survey, 82% of graduates were white, non-hispanic and 3.4% black, non-hispanic, compared to the Programs 44% and 22% respectively.

The Survey reported that 96% of graduates were United States citizens and 0.5% were Canadian, as compared to the Program (68% and 4%, respectively). The most frequently reported highest level of education completed by first year students in the Survey was 30.7% who completed 2 years of college, while the Program reported 24% who earned a baccalaureate degree. In the Program group, 100% who requested received assistance aid as compared to 84.3% of the Survey. The post-graduation occupation reported that 75% of

the Survey and 70% of the Program were employed in private practice, and 1.1% of Survey compared to 10% of Program graduates continued their education toward an advanced degree. The reported results demonstrated that there are differences between the Program and Survey information reported.

### **Personality Styles of Graduates and First Year Students Who Chose the Dental Hygiene Profession**

*\*Rosemary D. Hays, RDH, MS; Judy Kreismann, RDH, MA; Eva M. Lupovici, RDH, MS; Cheryl M. Westphal, RDH, MS  
New York University, College of Dentistry*

A survey was administered to 57 graduates and 47 first year students of a dental hygiene program using I-Speak Your Language:<sup>®</sup> A Survey of Personal Styles to obtain a profile of each group that chose to enter the dental hygiene profession based on 4 major personal styles. The survey results identified the primary personal style of each individual and are based on the theory developed by Carl Jung.

The survey is designed to measure individual primary personal style and associated styles of behavior. The 4 major styles are: Intuitor (I), Thinker (T), Feeler (F) and Senser (S). The results of the survey indicated that, under favorable conditions, 37% of the graduates and 38% of first year students were F, who place high values on human interaction. They seek and enjoy the stimulation of contact with others and typically try to understand and analyze their own emotions and those of others. Twenty-eight percent of graduates and 26% first year students were S. The S place high value on action and thrive on getting things done here and now without unnecessary time consuming deliberations. They want to implement whatever they believe should be done. Twenty-five percent of graduates and 23% first year students were T, placing high value on logic, ideas and systematic inquiry. They find satisfaction in identifying a problem, developing a variety of possible solutions and use the most logical systematic approach to problem solving. Ten percent of graduates and 13% of the first year students were I, who place high value on ideas, innovation, concepts, theory and long range thinking. They tend to be more stimulated and personally rewarded by effort in problem solving, rather than in implementing solutions. Survey results indicated that there was little significant difference in primary personal style between the graduates and first year students of a dental hygiene program.

### **Emerging Trends in Radiography: A Survey of South Dakota Dental Offices**

*\*Marti L. Pollard, RDH, MS; Beverly J. Kennedy, RDH, MA  
University Of South Dakota*

The purpose of this study is to determine the prevalence of digital radiography versus conventional film-based imaging in South Dakota dental practices, and to determine if some offices still use manual processing (dip tanks) to develop radiographs. The University of South Dakota offers the only dental hygiene program in the state of South Dakota, a rural state with a vast dichotomy of practitioners. The challenge educators face is assuring that the dental hygiene graduate will have the educational background to easily serve in any of these dental practices.

At the time of this survey, there were 333 practicing dentists, including specialists. A phone survey resulted in a 90% response rate. Of the 188 offices participating, investigators discovered 55% (n=103) utilized digital radiography – of these, 56% (n=58) used wired sensors and 40% (n=41) used image phosphor plates (wireless), while 1 office used both 0.5% (n=1). Three respondents were unsure what type of sensor was used. Eight percent (n=15) use both conventional and digital imaging. Sixty-seven percent (n=57) of those using conventional imaging plan to convert to digital, while 32% (n=28) do not. Most surprising is that 13% (n=25) of offices use manual processing – some for all radiographic processing, some for panoramic and cephalometric films and others as a back-up method.

With these results, faculty can modify and enhance current educational methodology. It is determined that students need experience with both conventional and digital radiography to transition successfully into any office setting. Also, exposure to manual processing will help those students who find themselves in practices that still use this method.

### **Expanding the Role of Dental Hygienists Providing Access to Care Using a School Based Model and Teledentistry**

*\*Melanie L. Simmer-Beck, RDH, MS; Cynthia C. Gadbury-Amyot, BSDH, EdD; Hayley Barker Ferris, RDH, BSDH, ECP; Bill Marse, BS; Harvey Eplee, DDS  
University of Missouri-Kansas City*

**Purpose:** To provide preventive oral health services in a school-based setting.

**Problem Statement:** Can a school-based preventive oral health program improve access to care? How will this affect the rate of decay and number of sealants in children?

**Methods:** This model replicates the “Community Collaborative Practice” model developed by Apple Tree Dental. It allows universal access by providing care “directly in the child’s school.” It expands the role of dental hygienists by establishing tele–health links with dentists and integrating all health care related services. Services are provided by dental hygiene students supervised by faculty holding a Kansas dental hygiene extended care permit.

**Results:** Approximately 916 children were eligible to participate during the 2008–2009 school year, with 450 children enrolling. Baseline data from the first target school were collected on 189 children with 119 (63%) exhibiting active decay. Sealants, restorative dentistry and dental hygiene care were rare. Children in our target population had a much higher rate of decay and significantly fewer sealants than children documented in a recent statewide survey, “Smiles Across Kansas 2007 Update.” Additionally, they did not meet the goals of Healthy People 2010 to reduce the proportion of children, adolescents and adults that have untreated dental decay to less than 21% and to increase the proportion of children who receive sealants on their molar teeth to 50%. As a result, all 189 children received preventive services including teeth cleanings, fluoride, xrays, sealants and education. Children who had decay were referred to dentists in the community that were part of a “Dentists Community Care” program.

**Conclusion:** This model significantly increased access to care in both unserved and underserved populations. Future efforts will be directed toward obtaining funding to extend the program. This project was approved by the University of Missouri–Kansas City IRB and funded by the REACH Health care Foundation.

### Effects of Standardized Patient Training on Dental Hygiene Students’ Confidence in Delivering Tobacco Cessation Counseling

*\*J. Robbyne Martin, RDH, BHS; Tabitha Tavoc, RDH, PhD; Margot Stein, PhD; Alice E. Curran, DMD, MS  
University of North Carolina Chapel Hill*

**Purpose:** The purpose of this study was to determine if the confidence of dental hygienists in providing Tobacco Cessation Counseling could be increased by incorporating Standardized Patient (SP) training into the dental hygiene Tobacco Cessation Counseling (TCC) curriculum.

**Problem Statement:** Dental hygienists report lack of confidence in their ability to initiate Tobacco Cessation Counseling with their patients who smoke.

**Methods:** A 2–parallel group randomized design was used to compare change of self–reported confidence of students in a pretest/posttest format. The sec-

ondary outcome measure was knowledge of TCC.

Following IRB approval, all subjects attended a TCC lecture on adapting the Stages of Change (SOC) behavior modification model to TCC. The subjects were randomly assigned to Test and Control groups within stratification levels based on the median score for the pretest knowledge. The Test group received SP training while the Control group did not. A posttest was administered to both groups. A debriefing session was held to obtain student feedback on the process.

**Results:** Analysis of Covariance (ANCOVA) compared the average confidence and knowledge posttest scores. Subjects (n=27) averaged 25 years in age and were 94% female. There was no statistically significant difference in posttest knowledge between the Control and Test groups ( $p=.08$ ). However, there was a statistically significant difference ( $p=.02$ ) in mean posttest Confidence between the Test (Mean = 34.57, SD = 22.93) and Control (Mean = 14.19, SD = 14, 51) groups.

**Conclusions:** SP training increased student confidence in their ability to counsel their patients who smoke. Students were most confident with identifying the SOC and least confident in providing follow up counseling for their patients. Students reported feeling positive about their SP training experience and reported more self–confidence in their counseling skills. This confidence may translate into dental hygienists being more willing and able to provide TCC to their patients.

### Health–Related Quality of Life and Illness Following Periodontal Instrumentation for Patients with Chronic Obstructive Pulmonary Disease And Chronic Periodontitis

*\*Brooke Agado, RDH, BS; Denise M. Bowen, RDH, MS  
Idaho State University*

The purpose of this study is to determine if patients with chronic obstructive pulmonary disease (COPD) receiving non–surgical periodontal therapy (NSPT) have a change in health–related quality of life (HRQL) as reflected by symptomology, disease activity and impacts on daily life or experience incidents of posttreatment illness when compared to no treatment (control). It is unknown whether ultrasonic or hand instrumentation during NSPT affects illness or HRQL for individuals with COPD and periodontitis.

Systematic reviews of studies documenting associations between periodontitis, nosocomial pneumonia and COPD include only high–risk individuals in hospitals or long–term care facilities. No evidence documents association between dental treatment, including aerosol generating and respiratory illness/infections

in ambulatory patients – however, precautions or contraindications appear in dental hygiene texts.

The research design is a 3–group (2 treatment and 1 control), randomized, controlled, pretest/posttest experimental design including 17 to 22 participants with COPD and periodontitis in each group (n=51, 66) respectively. NSPT includes Ultrasonic or Hand instrumentation. HRQL will be measured by the valid and reliable St. George’s Respiratory Questionnaire (SGRQ–A) in all 3 groups. The SGRQ–A will be administered as a pretest and posttest 4 weeks prior and 4 weeks following treatment (or no treatment). Another questionnaire will assess pretest and posttest self–reported post–treatment illness. The PI is delivering all treatment to assure blinding – a research assistant and confidential identifiers are being used for survey data.

Results are pending with data collection in progress. Descriptive statistics will determine sample demographics. ANOVA will be applied using SPSS to analyze survey data ( $\alpha=0.05$ ). If differences between groups are detected at pretest, analyses will correct for covariates and determine possible correlation or interaction. Subject recruitment began following IRB approval. Intra–rater calibration was established at  $r = 1.00$  for MCAL and  $0.97$  for PI.

### **Clinical Decision–Making Skills in Genetics With Dental Hygiene Students: Baseline**

*\*Christine P. Klausner, RDH, MS; Amy E. Coplen, BSDH; Wendy E. Kerschbaum, RDH, MA, MPH; Carole Anne Murdoch–Kinch, DDS, PhD; Lynn A. Johnson, PhD  
University of Michigan, School of Dentistry*

This study established baseline information on dental hygiene students’ ability to develop a dental hygiene treatment plan for patients with oral/facial genetic conditions. Dental hygiene students’ knowledge, experience and confidence were also assessed. This project was supported by an NIH/NIDCR grant #5R25 DE015350–02 focusing on genetics education in dentistry.

Baseline data were collected from sophomore (n=27) and senior (n=24) dental hygiene students as part of a multi–phased study of students’ ability to plan treatments for patients with genetic–related oral/facial diseases. A case simulation and Participant Perception Inventory (PPI) were used. Students were paired and provided patient information including a medical/dental history, clinical photos, a periodontal chart, a plaque index score, a pedigree chart and current self–care practices. Students identified patient problems and etiological factors and developed a treatment plan. A treatment plan was developed through faculty collaboration for comparison and evaluation of student responses. The

PPI required students to rank their knowledge, experience, and confidence levels about treatment planning, collaborating with others, using online resources clarifying patient history information and genetics.

Responses from the PPI were entered into SPSS and analyzed using ANOVA. Results of the case simulation indicated sophomore dental hygiene students scored higher than seniors in treatment planning (46% and 38% respectively), though not statistically significant. On the PPI, seniors rated their knowledge, experience and confidence significantly higher than sophomores ( $p<0.0001$ ). Scores for all students were low on the case simulation, reinforcing the need for a genetic component in the curriculum. This study established a baseline assessment of students’ perceptions of their knowledge, confidence and experience.

### **Second Life as an Educational Medium for Dental Hygiene**

*\*Kami M. Hanson, PhD; \*Susan W. Alexander, MEd  
Weber State University*

Second Life (SL) is an online 3–dimensional virtual world. Large numbers of educators and Universities already embrace SL as an instructional, cultural and experiential learning tool. As such, this research dives into the SL experience, and will expound on its relevance to dental hygiene practice and education. Specific emphasis will be placed on basic literacy and navigation in SL, emerging “best practices” for educational applications in SL and sharing the authors’ experiences and research with dental hygiene students in SL.

Methodology includes time intensive explorations in SL, participation in SL educational events and workshops and interactions with other educators in SL.

Evaluation of those activities will be qualitative and presented in narrative. Additionally, authors have involved students in dental hygiene instruction in SL and student group (previously known as SADHA) meetings. Those experiences will be evaluated using participant surveys and in–depth discourse analysis of computer mediated interactions. Further, discourse analysis will be “counted and coded” for content (or “nodes”) related to conceptual understandings and/or relationships that support communities of dental hygiene practice. Data will be presented as descriptive statistics and narrative explaining detectable “nodes” of learning experience and other valuable interactions. It is expected that students will discover new and innovative ways to learn and interact in SL and that faculty will learn to become proficient using virtual worlds software relevant for learning today.

SL is becoming a way to launch educational projects

and to engender scientific research. This is where the future for virtual worlds lies: not simply in fantasy and abstraction, but in real, practical applications for education, science and culture at large.

Funding for this project through Dee Family Technology Grant.

### **The Nonmedical Use of Prescription Stimulants Among Dental and Dental Hygiene Students**

*\*Amanda D. McNeil, RDH, MS; Kathleen B. Muzzin, RDH, MS; JoAnn L. Scofield, RDH, MS; Janice P. DeWald, DDS, MS; Ann McCann, PhD; Emet Schneiderman, PhD; Patricia R. Campbell, RDH, MS (Texas A&M Health Science Center Baylor, College of Dentistry)*

The purpose of this study was to determine the non-medical use of prescription Attention Deficit Disorder (ADD) stimulant medication among dental and dental hygiene students. Nonmedical use as defined by the National Survey on Drug Use and Health is the use of a prescription type psychotherapeutic drug not prescribed for the respondent by a physician or used only for the experience or feeling they caused.

A questionnaire was used to examine demographic information, student experiences and perceptions of prescription stimulant medication, and to determine if students had used a prescription stimulant non-medically. Four-hundred and one surveys were mailed to participating dental institutions in the South-Central Region of the United States in the fall of 2008. A total of 243 completed surveys were returned, for a response rate of 61%. Statistical analysis revealed that 12.4% of students in this survey reported using a prescription stimulant nonmedically. Of those, 70% reported taking a prescription stimulant to improve attention/concentration.

The results of the study may help administrators and faculty become aware of the potential problems that may arise with the misuse of ADD stimulant medication and enable professional institutions to incorporate prescription stimulants into their drug policy on campus.

Funding for this project was through the Office of the Associate Dean for Research and Graduate Studies, Texas A&M Health Science Center Baylor College of Dentistry.

### **Dental Hygiene Students' Application of Knowledge of Women's Health Issues**

*\*Joan Gibson-Howell, RDH, MSED, EdD  
The Ohio State University College of Dentistry*

As part of a dissertation project, the investigator studied United States dental hygiene curricula regarding women's health topics and related teaching methodology. A portion of the study examined where and how students apply their knowledge beyond the academic setting. By analyzing program curricula, changes were identified to enhance learning and promote necessary skills for future hygienists.

Purposes of this portion of the study were to identify settings and methods utilized by students to apply didactic knowledge regarding women's health issues in nontraditional sites, and to investigate differences in associate and baccalaureate degree programs relevant to women's health topics and learning activities. A questionnaire was mailed to all dental hygiene directors in the United States. Section 1 of the study asked respondents to identify locations and methods students applied knowledge of women's health issues. A combined response rate from 2 surveys was 43.5%. The Over Dispersed Poisson regression and Fisher's exact tests were used to analyze the data using JMP statistical package.

Results identified that students most often apply women's health knowledge in dental hygiene clinics, classrooms, community/public health clinics and nursing homes. The most common methods of applying knowledge were research projects, course work with dental students and community based research. No statistically significant differences were identified based on program degree. A preponderance of women's health information is learned in traditional academic setting and applied in familiar/traditional methods. This finding applies to all program degrees. Therefore, educational recommendations include implementing evidence-based andragogical 'experiential learning,' planning interdisciplinary learning experiences with other health care providers and planning learning experiences in communities where patients do not have access to health care. Such educational changes will promote skills and self confidence needed by future hygienists.

## Dental Hygienists as Educators in Social Action to Improve Access to Care

*\*Ellen J. Rogo, RDH, MEd; Roger Scott, PhD; James Girvan, PhD; Martha Yopp, PhD; Michael Kroth, PhD  
Idaho State University*

Underserved populations experience the burden of oral diseases from the lack of access to care, preventive services and comprehensive care. Access to dental hygiene care has been enhanced in states where laws have expanded the scope of practice to include direct access.

The purpose of the study was to understand dental hygienists as educators in social action as they provided direct care to underserved populations and worked on legislative initiatives to change laws that regulate practice. The problem addressed by the study was the lack of literature on the role of dental hygienists as educators. The significance of the inquiry was to explore why and how dental hygienists were educators in their struggle to improve access of care.

A qualitative paradigm was used to collect the interview data of 8 participants from California, Oregon and Washington who met the inclusion criteria. The interview data were analyzed using constructivist grounded theory methods: coding procedures, memo writing, constant comparative method, theoretical sampling and situational analysis.

The analysis revealed that dental hygienists were educators for improving access to care through their social action. The practitioners educated others to improve awareness, oral health and the dental hygiene profession.

The educators raised awareness of the population's needs, dental hygiene and legislative initiatives. In addition, they enhanced the oral health of the population and knowledge of support people. Improvement of the profession was attained through creating and mentoring. The situational analysis clarified the role of educator in formal settings, nonformal settings and informal settings of a nursing home practice, public health practice and the professional association. One significant issue emerged from the analysis: building a collective consciousness for an alternative oral health delivery system. In conclusion, dental hygienists engaged in social action as educators improved awareness, oral health and the profession in a variety of settings.

## Dental Magnification Loupes and the RDH

*\*Allison Castro, RDH, BSDH  
Farmingdale State College*

The purpose of this study was to determine whether dental magnification loupes affect the hygienist's practice of dental hygiene.

The literature related to magnification loupes suggested the use of dental loupes provides significant improvement in patient assessment and proper ergonomics. The methodology of this study included questionnaires which were distributed randomly to dental hygienists and members of the dental hygiene online community AmyRDH.com. One-hundred responses were obtained through SurveyMonkey.com, a web based survey collection site, and all answers were anonymous.

Data was analyzed using basic descriptive statistics including frequency distribution and analysis of means. A majority of the respondents received most of their clinical experience from a general dentist office. Forty six percent of those surveyed have practiced dental hygiene for 21 years or more. A significant number of respondents reported the practice of dental hygiene had caused problems with their back, neck and hands. Sixty five percent reported problems with their back, while 66% reported neck problems and 59% reported problems with their hands. Among the respondents, 73% reported they practice with dental loupes. One hundred percent of those respondents that practice with dental loupes have found improvement in ergonomic status, oral assessment in patient care and overall improvement in the practice of dental hygiene.

There has also been a reported greater ease of attaining periodontal probe depths according to 71% of the respondents. The respondents of this pilot study indicated the use of magnification loupes has significantly improved the practice of dental hygiene.

Recommendations for further research might be to determine if the type of dental loupes used and the number of years worn would effect the results. An LED headlight used in combination with the magnification loupes may be an additional area for further research.

## Enamel Fluoride Uptake and Antimicrobial Effectiveness of an Herbal Fluoride Mouthrinse

*\*Connie Gregson, MS; Carlos González-Cabezas, DDS, PhD; Anne D. Haffajee, BDS; Tina Yaskell, BS  
Natural Dentist, Inc.*

**Purpose:** The objectives of the study were to determine the Enamel Fluoride Uptake (EFU) of the Natural Dentist Anticavity Fluoride Rinse (TND) and to deter-



mine its antimicrobial effectiveness as measured by its Minimum Inhibitory Concentration (MIC) against predominant oral pathogens.

**Problem Statement:** Natural oral health products are alternatives if they demonstrate comparable or greater effectiveness as compared to conventional products.

**Methods:** For the EFU, human enamel specimens were prepared. Each sample was demineralized, and pre-treatment fluoride and calcium contents were measured. A caries-like lesion was formed in each specimen, and the specimens were treated with the assigned mouthrinse (TND, ACT or Phos-Flur). During posttreatment, specimens were demineralized and the resulting solutions were analyzed for fluoride and calcium. For the MIC, an agar dilution method was used to test the agents against 44 oral bacteria. Serial dilutions of TND and Listerine were prepared. The media and the test agents were prepared into petri plates and inoculated with the cultured bacterial species. The MIC was interpreted as the lowest concentration of the agent that inhibited the growth of the test species.

**Results:** Fluoride uptake was calculated by subtracting the pre-treatment level of fluoride from the post-treatment level. A 1-way analysis of variance model indicated significantly greater EFU with TND and Phos-Flur as compared to ACT ( $p < 0.05$ ). Regarding the MIC, TND inhibited the growth of all 44 bacterial species tested. For several oral pathogens, TND had significantly lower MICs in comparison to Listerine.

**Conclusions:** The data from these in vitro studies indicate effectiveness with TND Anticavity Fluoride Rinse in terms of fluoride uptake and antimicrobial activity.

Funding for this project supported by Natural Dentist, Inc.

### Dental Service Access, Dental Service Utilization, and Alcohol Use Predictors in Adults

*\*Joyce M. Downs, RDH, MS; Carleen M. Lynch, RDH, MS, MPH; James A. Neff, PhD, MPH  
Old Dominion University*

Dental caries, periodontal disease and reported pain are among the oral conditions which constitute oral health status. Identification of indicators that predict oral health status can improve the health and wellness of Americans.

To identify predictors of oral health status, logistic regression analyses were performed on 2,848 adults included in the 2001–2002 National Health and Nutrition Examination Survey (NHANES). Predictors included socio-demographic factors (race, gender, income, education), dental service access (possessing dental insur-

ance or a regular dentist), alcohol use as a behavioral risk (measured by frequency, quantity and total weekly consumption), dental service use (dental visit past year and annual check-ups past 3 years).

Caries were significantly ( $p < .05$ ) more likely in blacks (OR=2.73), Hispanics (OR=1.71) and males (OR=1.23), and were less frequent in older adults (OR=.99) and those reporting a dental check-up in the last year (OR=.44).

Periodontal and gums problems were significantly ( $p < .05$ ) more likely among blacks (OR=2.34), Hispanics (OR=1.80) and males (OR=1.61) and less likely in adults educated beyond high school (OR=.65) and those who visited a dentist in the last year (OR=.65). Hispanics were significantly ( $p < .05$ ) more likely to report dental pain in the last month (OR=1.79), while males were less likely (OR=.72) to report pain. The largest proportion of variance in oral health status was explained by sociodemographics (9.4% to 16%) with less than 1% variance explained by dental service access, dental service utilization and alcohol use. The limited amount of explained variance suggests the need to construct better measures of oral health status using NHANES data.

### Use of Reflective Blogs to Promote Critical Thinking in Dental Hygiene Students

*\*Ann O'Kelley Wetmore, RDH, BSDH, MSDH; Linda D. Boyd, RDH, RD, EdD; Denise M. Bowen, RDH, MS; Robin Pattillo, RN, PhD  
(Idaho State University)*

**Introduction:** Critical thinking is a crucial element in the practice of dental hygiene. A challenge facing dental hygiene education is identifying strategies clinical dental hygiene educators can implement to promote critical thinking and clinical reasoning.

**Purpose:** The purpose of this study was to evaluate the impact of an emerging technology, reflective blogs guided by weekly questions about the dental hygiene process of care, on critical thinking of first year dental hygiene students as they began providing patient care.

**Method:** After obtaining IRB approvals, a 2-group, pre- and posttest design was implemented to gather quantitative data through administration of the Health Sciences Reasoning Test (HSRT), a critical thinking and clinical reasoning measurement tool developed specifically for health sciences. Intervention ( $n=28$ ) and control ( $n=30$ ) group pre- and posttest HSRT scores evaluated the use of a reflective blog to promote critical thinking in dental hygiene students. In addition, qualitative data gathered through analysis of student blogs ( $n=25$ ), utilizing a self-designed rubric ( $\alpha > 0.86$ ), based on Mezirow et al's model of reflection (1990), ascertained if reflective blogging increased dental hy-

giene students' levels of reflection. Finally, Pearson's correlation determined if there was a correlation between these students' HSRT and rubric scores.

**Results:** Within this convenience sample, the use of reflective blogs with guided questions did not have a significant impact on participants' critical thinking as measured by the HSRT ( $F=0.08$ ,  $p=0.782$ ). However, rubric scores analyses demonstrated statistically significant improvements ( $F=5.51$ ,  $p=.0274$ ) in students'

levels of reflection. Furthermore, data analysis revealed a correlation ( $p<0.05$ ) between these dental hygiene students' pre- and posttest HSRT scores and their pre- and post-reflection rubric scores.

**Conclusion:** This study intended to provide an initial framework for further research in pedagogy utilizing technology to enhance reflection, critical thinking, and clinical reasoning in dental hygiene students.